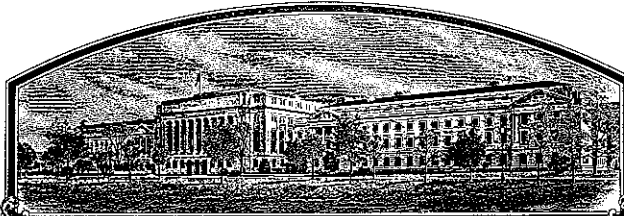


No.

9800021



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Western Plant Breeders

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED, PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. (34 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

WHEAT, DURUM

'Tacna'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this thirty-first day of March, in the year of our Lord two thousand.

Attest:

Ann Marie Sh...

Commissioner
Plant Variety Protection Office

Samuel H. ...

Secretary of Agriculture

REPRODUCE LOCALLY. Include form number and date on all reproductions.

FORM APPROVED - OMB NO. 0581-001

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY DIVISION - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) (as it is to appear on the Certificate)

Western Plant Breeders, Inc.

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER

PH891-74

3. VARIETY NAME

Tacna

4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)

8111 Timberline Drive
Bozamen, MT 59715

5. TELEPHONE (include area code)

(406) 587-1218

6. FAX (include area code)

(406) 586-8247

FOR OFFICIAL USE ONLY

PVPO NUMBER

9800021

FILING

DATE

FILING AND EXAMINATION FEE:

\$ 2450.00

DATE

11/3/97

CERTIFICATION FEE:

\$ 300

DATE

1-1900

7. GENUS AND SPECIES NAME

Triticum durum

8. FAMILY NAME (Botanical)

Gramineae

9. CROP KIND NAME (Common name)

Durum wheat

10. IF THE APPLICANT NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.) (Common name)

Corporation

11. IF INCORPORATED, GIVE STATE OF INCORPORATION

Arizona

12. DATE OF INCORPORATION

08/24/90

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS

Kim C. Shantz
Western Plant Breeders, Inc.
P.O. Box 6904, 1661 E. 20th Street
Yuma, AZ 85366

14. TELEPHONE (include area code)

(520) 782-2749

15. FAX (include area code)

(520) 782-2751

16. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse)

a. ☒ Exhibit A. Origin and Breeding History of the Variety

b. ☒ Exhibit B. Statement of Distinctness

c. ☒ Exhibit C. Objective Description of the Variety

d. ☐ Exhibit D. Additional Description of the Variety (Optional)

e. ☒ Exhibit E. Statement of the Basis of the Applicant's Ownership

f. ☒ Voucher Sample (2,500 viable untreated seeds or, for tuber propagated varieties verification that tissue culture will be deposited and maintained in an approved public repository)

g. ☒ Filing and Examination Fee (\$2,450), made payable to "Treasurer of the United States" (Mail to PVPO)

17. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY, AS A CLASS OF CERTIFIED SEED? (See Section 83(a) of the Plant Variety Protection Act)

☐ YES If "yes," answer items 18 and 19 below

☒ NO If "no," go to item 20

18. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?

☐ YES

☒ NO

19. IF "YES" TO ITEM 18, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?

☐ FOUNDATION

☐ REGISTERED

☐ CERTIFIED

20. HAS THE VARIETY OR A HYBRID PRODUCED FROM THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?

☒ YES If "yes," give names of countries and dates

☐ NO

December 2, 1996

21. The applicant(s) declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned applicant(s) is/are the owner(s) of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant(s) is/are informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT (Owner(s))

Kim C. Shantz

NAME (Please print or type)

Kim C. Shantz

CAPACITY OR TITLE

Wheat Breeder

DATE

10/20/97

SIGNATURE OF APPLICANT (Owner(s))

DR Biggerstaff

NAME (Please print or type)

Dan R. Biggerstaff

CAPACITY OR TITLE

General Manager

DATE

10/24/97

Exhibit A Origin and Breeding History of the Variety

TACNA is a spring durum wheat selected from a cross designated Durum S-1/E. Wheat-89 made in 1989. Durum S-1 was a Male Sterile Facilitated Recurrent Selection Population (MSFRS) made by crossing WestBred 881, Imperial, PH885-60, PH884-11, PH884-2, PH883-2, PH885-9 and PH883-2sh onto early male sterile F2 plants in a population designated ESDP-87 S-1. ESDP-87 S-1 was generated by crossing a male sterile plant found in Mexicali with Mesavria, PI143780, PI32477, PI32482, and PI176286. ESDP-87 S-1 was the F2 progeny after two cycles of intercrossing. PH885-60, PH884-11, PH884-2, PH883-2, PH885-9, and PH883-2sh were all selected from the composite cross SDP-80/WestBred 881. SDP-80 was derived from crossing F2 plants in SDP-79 with the following lines: WestBred 803, WestBred 1000D, Mexicali, Aldura, Calvin, Yavaros 79, Valnova, Mida and WestBred 881. The crosses were all bulked together in the F1. SDP-79 was derived from crossing WestBred 1000D and Mexicali with the following lines: Calvin, Edmore, Bitterin 'S', Gerado 512, Gerado 572, and Gerado 532. The crosses were all bulked together in the F1. E. Wheat-89 was 20 very early F4 rows selected from a Western Plant Breeder's MSFRSP designated EHRSP-85. EHRSP-85 was formed by crossing Ken 149, WestBred 906R and W-444 onto early male sterile plants in MSFRSP Wheat Germplasm CC A-1977. MSFRSP Wheat Germplasm CC A-1977 was a public release by Mr. Rex K. Thompson of the University of Arizona. The crosses were bulked together and the F1 was grown in Bozeman, MT., the summer of 1989. The F2 was grown at Phoenix, AZ., in 1990. Durum head types were selected and bulked to grow the F3 population in Bozeman in 1990. Spikes were selected and grown as head rows at Phoenix, AZ in 1991. One row designated PH891-74 was harvested in bulk and yield tested in the Desert Durum area in 1992, 1993, 1994 and 1995. Stability and uniformity have been observed for four generations as evidenced by the tables.

In 1993 at Bozeman, MT, 32 heads were selected and were grown as head rows in Phoenix, AZ., in 1994. Seventeen (17) rows were found to be similar and uniform were grown as head row plots at Bozeman, MT., in 1994. Eleven (11) uniform head row plots were bulked together and designated Breeder Seed. This breeder seed was used to produce foundation seed at Yuma, AZ., in 1995. A taller variant (12-30cm) occurs at a frequency of .03%. A black awn variant occurs at a frequency of .02%.

The selection criteria used during the breeding of Tacna were as follows:

F1	None, bulk harvest
F2	Durum type spikes, semidwarf growth habit and robust plants
F3	None, random spike harvest
F4	Visual high yield rows, semidwarf growth habit, flowering date, % protein, S.D.S. sedimentation, semolina color, test weight, durum seed type, and lodging resistance

Exhibit B. Statement of Distinctness

TACNA is a day length insensitive spring durum wheat with an average height of 88 centimeters which is 6 centimeters shorter than Kofa. TACNA most resembles Kofa but differs in that the glume beaks of TACNA are medium short compared to medium long, the glume pubescence of TACNA is almost non-existent compared to prominent, and the stem of TACNA are hollow compared to solid. The stems are white, mid-strong, hollow with waxy bloom. The spikes are oblong, dense midlong, mid-wide with long white awns. The glumes are white, long and wide with narrow apiculate shoulders. The glume beaks are narrow medium short and acuminate. The seeds are long wide and elliptical with midwide and shallow creases. The cheeks are rounded and the germ sizes are large.

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE DIVISION
BELTSVILLE, MARYLAND 20705

EXHIBIT
(Wheat)

OBJECTIVE DESCRIPTION OF VARIETY
WHEAT (*Triticum* spp.)

NAME OF APPLICANT(S) Western Plant Breeders, Inc.	FOR OFFICIAL USE ONLY
ADDRESS (Street and No. or R.F.D. No., City, State, and Zip Code) 8111 Timberline Drive Bozeman, MT 59715	PVPO NUMBER 9800021
	VARIETY NAME Tacna
	TEMPORARY OR EXPERIMENTAL DESIGNATION

PLEASE READ ALL INSTRUCTIONS CAREFULLY: Place the appropriate number that describes the varietal character of this variety in the boxes below. Place a zero in the first box (e.g. or) when number is either 99 or less or 9 or less respectively. Data for quantitative plant characters should be based on a minimum of 100 plants. Comparative data should be determined from varieties entered in the same trial. Royal Horticultural Society or any recognized color standard may be used to determine plant colors; designate system used: _____

Please answer all questions for your variety; lack of response may delay progress of your application.

1. KIND:

2

1=Common 2=Durum 3=Club 4=Other (SPECIFY) _____

2. VERNALIZATION:

1

1=Spring 2=Winter 3=Other (SPECIFY) _____

3. COLEOPTILE ANTHOCYANIN:

1

1=Absent 2=Present

4. JUVENILE PLANT GROWTH:

3

1=Prostrate 2=Semi-erect 3=Erect

5. PLANT COLOR (boot stage):

2

1 = Yellow-Green 2 = Green 3 = Blue-Green

6. FLAG LEAF (boot stage):

2

1 = Erect 2 = Recurved

2

1 = Not Twisted 2 = Twisted

7. EAR EMERGENCE:

0 3

Number of Days Earlier Than _____ Kofa *

Number of Days Later Than _____ *

8. ANTHOR COLOR:

1

1 = YELLOW 2 = PURPLE

9. PLANT HEIGHT (from soil to top of head, excluding awns):

3

cm Taller Than _____ Aldura

6

cm Shorter Than _____ Kofa

4*

10. STEM:

A. ANTHOCYANIN

☐ 1 = Absent 2 = Present

B. WAXY BLOOM

☐ 2 = Absent 2 = Present

C. HAIRINESS (last internode of rachis)

☐ 2 = Absent 2 = Present

D. INTERNODE (SPECIFY NUMBER)

☐ 1 = Hollow 2 = Semi-solid 3 = Solid

E. PEDUNCLE

☐ 2 = Absent 2 = Present

☐ cm Length

9800021

11. HEAD (at Maturity):

A. DENSITY

☐ 3 = Lax 2 = Middense 3 = Dense

B. SHAPE

☐ 2 = Tapering 2 = Strap 3 = Clavate 4 = Other (SPECIFY)

C. CURVATURE

☐ 1 = Erect 2 = Inclined 3 = Recurved

D. AWNEDNESS

☐ 4 = Awnless 2 = Apically Awnletted 3 = Awnletted 4 = Awned

12. GLUMES (at Maturity):

A. COLOR

☐ 1 = White 2 = Tan 3 = Other (SPECIFY)

B. SHOULDER

☐ 6 = Wanting 2 = Oblique 3 = Rounded 4 = Square 5 = Elevated 6 = Apiculate

C. BEAK

☐ 3 = Obtuse 2 = Acute 3 = Acuminate

D. LENGTH

☐ 3 = Short (ca. 7mm) 2 = Medium (ca. 8mm) 3 = Long (ca. 9mm)

E. WIDTH

☐ 3 = Narrow (ca. 3mm) 2 = Medium (ca. 3.5mm) 3 = Wide (ca. 4mm)

13. SEED:

A. SHAPE

☐ 3 = Ovate 2 = Oval 3 = Elliptical

B. CHEEK

☐ 1 = Rounded 2 = Angular

C. BRUSH

☐ 2 = Short 2 = Medium 3 = Long

☐ 1 = Not Collared 2 = Collared

D. CREASE

☐ 2 = Width 60% or less of Kernel
 2 = Width 80% or less of Kernel
 3 = Width Nearly as Wide as Kernel

☐ 1 = Depth 20% or less of Kernel
 2 = Depth 35% or less of Kernel
 3 = Depth 50% or less of Kernel

13. SEED: (continued)

9800021

E. COLOR

☐ 2

1 = White

2 = Amber

3 = Red

4 = Other (SPECIFY) _____

F. TEXTURE

☐ 1

1=Hard

2=Soft

G. PHENOL REACTION (see instructions):

☐

1 = Ivory

2 = Fawn

3 = Light Brown

4 = Dark Brown

5 = Black

14. DISEASE: (0=Not Tested; 1=Susceptible; 2=Resistant; 3=Intermediate; 4=Tolerant)
PLEASE INDICATE THE SPECIFIC RACE OR STRAIN TESTEDStem Rust (*Puccinia graminis* f. sp. *tritici*)☐ 0Leaf Rust (*Puccinia recondita* f. sp. *tritici*)☐ 0Stripe Rust (*Puccinia striiformis*)☐ 0Loose Smut (*Ustilago tritici*)☐ 0Tan Spot (*Pyrenophora tritici-repentis*)☐ 0Flag Smut (*Urocystis agropyri*)☐ 0Halo Spot (*Selenophoma donacis*)☐ 0Common Bunt (*Tilletia tritici* or *T. laevis*)☐ 0

Septoria nodorum (Glume Blotch)

☐ 0Dwarf Bunt (*Tilletia controversa*)☐ 0

Septoria avenae (Speckled Leaf Disease)

☐ 0Karnal Bunt (*Tilletia indica*)☐ 1

Septoria tritici (Speckled Leaf Blotch)

☐ 0Powdery Mildew (*Erysiphe graminis* f. sp. *tritici*)☐ 0Scab (*Fusarium* spp.)☐ 0

"Snow Molds"

☐ 0

"Black Point" (Kernel Smudge)

☐ 1Common Root Rot (*Fusarium*, *Cochliobolus* and *Bipolaris* spp.)☐ 0

Barley Yellow Dwarf Virus (BYDV)

☐ 0Rhizoctonia Root Rot (*Rhizoctonia solani*)☐ 0

Soilborne Mosaic Virus (SBMV)

☐ 0Black Chaff (*Xanthomonas campestris* pv. *translucens*)☐ 0

Wheat Yellow (Spindle Streak) Mosaic Virus

☐ 0Bacterial Leaf Blight (*Pseudomonas syringae* pv. *syringae*)☐ 0

Wheat Streak Mosaic Virus (WSMV)

☐ 0

Other (SPECIFY) _____

☐

Other (SPECIFY) _____

☐

Other (SPECIFY) _____

☐

Other (SPECIFY) _____

☐

Other (SPECIFY) _____

☐

Other (SPECIFY) _____

☐

Other (SPECIFY) _____

☐

15. INSECT: (0=Not Tested; 1=Susceptible; 2=Resistant; 3=Intermediate; 4=Tolerant)

Exhibit C (Wheat) Page

PLEASE SPECIFY BIOTYPE (where needed)

9800021

Hessian Fly (*Mayetiola destructor*)

☐ 0

Other (SPECIFY) _____

☐

Stem Sawfly (*Cephus* spp.)

☐ 0

Other (SPECIFY) _____

☐

Cereal Leaf Beetle (*Oulema melanopa*)

☐ 0

Other (SPECIFY) _____

☐

Russian Aphid (*Diuraphis noxia*)

☐ 0

Other (SPECIFY) _____

☐

Greenbug (*Schizaphis graminum*)

☐ 0

Other (SPECIFY) _____

☐

Aphids

☐ 0

Other (SPECIFY) _____

☐

16. ADDITIONAL INFORMATION ON ANY ITEM ABOVE, OR GENERAL COMMENTS:

Table I. Yield in pounds per acre of TACNA and check varieties in Western Plant Breeders' Trials.

Location	Year	TACNA	WestBred 881	Kofa	WestBred Turbo	Aldura
Phoenix	1992	6221	6221	6912	7450	6656
	1993	6281	5786	6063	7424	6656
	1994	6999	7108	7253	8341	7589
	1995	6038	4932	5911	7815	6555
Phoenix Late	1993	7245	6502	6741	7782	6784
	1994	6521	5963	6499	7794	7707
	1995	5542	5106	5348	6340	6534
San Joaquin	1993	6510	6240	6034	7530	6990
	1994	5935	5974	6322	6032	7134
Yuma	1993	6912	6042	6080	7066	6810
	1994	6707	5734	5973	6434	6554
	1995	6897	6534	6655	8034	7006
El Centro	1994	6209	5650	6410	8107	6834
	1995	<u>6524</u>	<u>5614</u>	<u>5984</u>	<u>7720</u>	<u>6389</u>
Average		6467	5958	6299	7419	6871

Table II. Test weight of TACNA in lbs. per bushel and check varieties in Western Plant Breeders' Trials.

Location	Year	TACNA	WestBred 881	Kofa	WestBred Turbo	Aldura
Phoenix	1992	60.9	60.5	60.8	62.5	62.7
	1993	62.6	62.5	62.7	63.0	63.8
	1994	61.7	61.0	61.8	62.0	62.9
	1995	63.1	63.1	63.6	64.2	65.2
Phoenix Late	1993	63.2	62.7	62.7	63.0	63.0
	1994	63.5	63.7	64.1	65.2	65.1
San Joaquin	1993	63.9	62.5	63.2	63.3	63.5
	1994	63.1	61.3	61.7	63.1	61.9
Yuma	1993	60.9	61.9	61.4	64.1	64.3
	1994	60.5	60.2	60.6	60.6	62.5
	1995	62.3	61.7	61.5	64.0	64.1
El Centro	1994	62.1	62.2	61.9	63.7	63.5
	1995	<u>61.6</u>	<u>60.9</u>	<u>60.7</u>	<u>64.9</u>	<u>64.9</u>
Average		62.3	61.9	62.1	63.4	63.6

Table III. % Protein of TACNA and check varieties of the Western Plant Breeders' Trials.

Location	Year	TACNA	WestBred 881	Kofa	WestBred Turbo	Aldura
Phoenix	1992	15.5	14.3	13.8	12.6	13.8
	1993	14.8	14.1	14.7	11.3	13.2
	1994	14.7	14.8	14.5	13.6	14.1
	1995	15.5	14.6	15.0	12.0	13.3
Phoenix Late	1993	14.3	13.1	14.1	12.4	12.3
	1994	14.4	13.6	13.6	11.5	13.3
San Joaquin	1993	12.6	13.1	12.1	11.6	12.3
	1994	14.3	13.6	13.7	13.6	14.0
Yuma	1993	15.6	15.4	15.9	12.4	14.1
	1994	15.0	14.9	15.0	13.9	14.4
	1995	15.7	15.4	15.1	12.5	13.8
El Centro	1994	15.2	15.0	14.1	12.9	13.6
	1995	<u>16.0</u>	<u>15.8</u>	<u>16.1</u>	<u>14.5</u>	<u>15.1</u>
Average		14.9	14.4	14.4	11.8	13.6

Table IV. Semolina Color of TACNA and check varieties in Western Plant Breeders' Trials. *

Location	Year	TACNA	WestBred 881	Kofa	WestBred Turbo	Aldura
Phoenix	1992	2.0	2.5	2.0	3.0	2.0
	1993	1.5	2.0	1.7	3.0	2.0
	1994	1.7	2.0	1.0	3.0	1.5
	1995	1.5	2.0	2.0	3.0	2.0
Phoenix Late	1993	1.0	1.5	1.3	2.5	2.0
	1994	1.3	1.7	1.2	2.7	1.0
San Joaquin	1993	1.0	1.5	1.3	2.5	2.0
	1994	2.0	1.5	1.3	2.7	1.5
Yuma	1993	1.5	2.0	1.3	3.0	2.0
	1994	1.7	2.0	1.3	2.7	1.5
	1995	1.7	1.8	1.3	2.3	2.0
El Centro	1994	1.3	2.0	1.3	2.7	2.0
	1995	<u>2.3</u>	<u>2.2</u>	<u>2.2</u>	<u>3.0</u>	<u>1.5</u>
Average		1.6	1.9	1.5	2.8	1.8

*** Subjective color slick rating**

1= bright yellow

4= pale yellow

Table V. S.D.S. Sedimentation of PH981-74 and check varieties in the Western Plant Breeders' Trials.

Location	Year	TACNA	WestBred 881	Kofa	WestBred Turbo	Aldura
Phoenix	1992	32	29	36	28	20
	1993	35	38	42	29	19
	1994	42	39	40	34	21
	1995	51	53	53	40	24
Phoenix Late	1993	35	33	38	28	18
	1994	41	37	38	33	21
San Joaquin	1993	43	48	52	38	20
	1994	43	41	45	34	30
Yuma	1993	34	38	46	31	20
	1994	39	38	41	32	21
	1995	51	45	50	42	26
El Centro	1994	50	51	51	39	21
	1995	<u>49</u>	<u>47</u>	<u>50</u>	<u>38</u>	<u>26</u>
Average		41.9	41.3	44.8	34.3	22.1

Table VI. % Black point of TACNA and check varieties in the Western Plant Breeders' Trials.

Location	Year	TACNA	WestBred 881	Kofa	WestBred Turbo	Aldura
Phoenix	1993	16	9	16	1	12
	1994	7	9	9	9	4
Phoenix Late	1994	6	3	5	2	2
Yuma	1993	31	38	57	9	35
	1994	23	27	21	32	28
	1995	33	47	35	17	23
El Centro	1994	19	23	31	21	35
	1995	<u>17</u>	<u>33</u>	<u>25</u>	<u>7</u>	<u>22</u>
Average		19	24	25	12	20

Table VII. Plant height in inches of TACNA and check varieties of Western Plant Breeders' Trials.

Location	Year	TACNA	WestBred 881	Kofa	WestBred Turbo	Aldura
Phoenix	1992	34	36	37	39	35
	1993	39	39	40	42	38
	1994	36	35	37	37	35
	1995	35	35	36	43	36
Phoenix Late	1993	37	37	41	42	35
	1994	31	34	35	38	32
	1995	36	39	38	38	35
San Joaquin	1993	35	37	38	38	32
	1994	30	32	32	32	27
Yuma	1993	36	35	35	42	33
El Centro	1994	<u>33</u>	<u>36</u>	<u>38</u>	<u>37</u>	<u>32</u>
Average		34.7	35.9	37	38.9	33.6

Table VIII. % Lodging of TACNA and check varieties in Western Plant Breeders' Trials.

Location	Year	TACNA	WestBred 881	Kofa	WestBred Turbo	Aldura
Phoenix	1992	10	0	33	45	0
	1993	3	7	7	50	0
	1994	0	3	3	27	0
	1995	20	40	33	7	0
Phoenix Late	1993	0	0	3	5	0
	1994	0	0	0	17	0
Yuma	1994	73	77	80	83	15
El Centro	1994	0	0	0	7	0
	1995	<u>80</u>	<u>63</u>	<u>60</u>	<u>77</u>	<u>15</u>
Average		21	21	24	35	3

Table IX. Days to heading after March 1 of TACNA and check varieties in Western Plant Breeders' Trials.

Location	Year	TACNA	WestBred 881	Kofa	WestBred Turbo	Aldura
Phoenix	1993	19	23	24	33	26
	1994	22	27	26	33	31
	1995	21	24	24	35	24
Phoenix Late	1993	27	30	30	37	34
	1994	36	40	41	43	44
	1995	<u>24</u>	<u>26</u>	<u>25</u>	<u>34</u>	<u>33</u>
Average		24.8	28.3	28.3	35.8	32

Table X. % hard amber vitreous counts of TACNA and check varieties in Western Plant Breeders' Trials.

Location	Year	TACNA	WestBred 881	Kofa	WestBred Turbo	Aldura
Phoenix	1993	98	96	99	95	94
Phoenix Late	1994	97	99	99	85	96
	1995	85	80	83	27	18
San Joaquin	1993	<u>93</u>	<u>96</u>	<u>97</u>	<u>94</u>	<u>91</u>
Average		93	93	95	75	75

Table XI. Quality of TACNA compared to WestBred 881 in Western Plant Breeders' Trials from the U.S.D.A. Durum laboratory in Fargo, North Dakota.

	<u>TACNA</u>		<u>WestBred 881</u>	
	1993 Phoenix	1994 Phoenix	1993 Phoenix	1994 Phoenix
Test Wgt	62.6	63.2	63.0	62.8
1000 K G	54.3	57.4	60.2	57.9
Wheat Protein	13.8	14.4	13.9	14.0
Semolina Extr.	65.4	61.7	66.2	60.9
Specks	3	29	20	38
Semolina Ash	.69	.67	.68	.56
DustColor [™] b [™]	7.4	24.7	7.0	23.7
Mixograph	6	—	8	—
Semolina Pro	12.7	13.3	12.6	12.2
VisualColor	8.2	9.5	7.8	9.5
Cooked Wt	30.2	31.3	31.0	31.3
Firmness	5.8	6.4	6.3	6.5
Residue G	13	—	10	—
Alveograph W	195	294	221	228
P/L	1.5	1.4	1.6	1.5

Table XII. Quality of TACNA and WestBred 881 in Western Plant Breeders' Trials from Barilla Laboratory data.

	<u>Tacna</u>				<u>WestBred 881</u>			
	1993 PHLate	1993 Phoenix	1994 PHLate	1994 ElCentro	1993 PHLate	1993 Phoenix	1994 PHLate	1994 ElCentro
Test Weight	86.2	84.2	85.5	82.6	84.4	84.6	86.2	83.3
Semolina Pro	14.9	15.7	15.4	15.2	14.7	15.2	14.3	15.3
Gluten %	13.6	14.3	14.2	14.3	12.8	13.6	12.9	13.7
Manuel Gluten Judgement	6.3	6.5	6.9	6.7	7.0	7.0	7.2	6.9
Alveograph W	333	328	404	440	297	348	594	452
P/L	2.1	1.27	2.1	1.3	1.86	1.7	4.4	1.79
Yellow Index "b"	26.8	24.9	25.1	25.7	25.2	24.0	23.2	23.4

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

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EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) Western Plant Breeders, Inc.	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER	3. VARIETY NAME Tacna
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP, and Country) 8111 Timberline Drive Bozeman, MT 59715	5. TELEPHONE (include area code) (406) 587-1218	6. FAX (include area code) (406) 586-8247
7. PVPO NUMBER 9800021		
8. Does the applicant own all rights to the variety? Mark an "X" in appropriate block. If no, please explain. <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		

9. Is the applicant (individual or company) a U.S. national or U.S. based company? If no, give name of country		<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
10. Is the applicant the original owner?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	If no, please answer <u>one</u> of the following:
a. If original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. national(s)?		
<input type="checkbox"/> YES <input type="checkbox"/> NO If no, give name of country		
b. If original rights to variety were owned by a company(ies), is(are) the original owner(s) a U.S. based company?		
<input type="checkbox"/> YES <input type="checkbox"/> NO If no, give name of country		
11. Additional explanation on ownership (if needed, use reverse for extra space):		

PLEASE NOTE:

Plant variety protection can be afforded only to owners (not licensees) who meet one of the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definition.

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